Chapter Seven
AIRPORT PLANS

Chapter Seven
AIRPORT PLANS

Flagstaff Pulliam Airport

In Chapter Five, an evaluation was made of future options for airport development. This effort resulted in the selection of a recommended concept for future airport improvement that could accommodate previously identified requirements for new airport facilities. The purpose of this chapter is to describe in narrative and graphic form the recommended development through the 20-year planning period.

A set of plans, referred to as **Airport Layout Plans**, has been prepared to graphically depict the recommendations for airfield layouts, disposition of obstructions and future use of land in the vicinity of the airport. This set of plans includes:

- Airport Layout Plan
- Terminal Area Plan
- Part 77 Airspace Plan
- Approach Zones Profiles
- Runway Protection Zones Plan
- Airport Land Use Plan

AIRPORT DESIGN STANDARDS

Flagstaff Pulliam Airport is identified as a primary commercial service short haul airport in the FAA National Plan of Integrated Airport Systems (NPIAS). The design standards for an airport of this type are included in FAA Advisory Circular 150/5300-13, **Airport Design**. These design standards are based upon the operational characteristics and the aircraft types that the airport is expected to serve on a regular basis. Most critical to airport design standards are the weight, wingspan and approach speed of the design aircraft. Recently, the FAA instituted an Airport Reference Code system based on an aircraft's approach category and the airplane design group (ADG).

The aircraft approach category is a grouping of aircraft by approach to landing speeds, calculated at 1.3 times the aircraft stall speed in the landing configuration at the aircraft's maximum certificated landing weight. The categories are as follows:

- **Category A:** Speed less than 91 knots.
- **Category B:** Speed 91 knots or more but less than 121 knots.
- **Category C:** Speed 121 knots or more but less than 141 knots.
- **Category D:** Speed 141 knots or more but less than 166 knots.
- **Category E:** Speed 166 knots or more.

The airplane design group (ADG) is a grouping of airplanes based on wingspans. The ADG's are as follows:

- **ADG I:** Up to but not including 49 feet.
- **ADG II:** 49 feet up to but not including 79 feet.
- **ADG III:** 79 feet up to but not including 118 feet.
- **ADG IV:** 118 feet up to but not including 171 feet.
- **ADG V:** 171 feet up to but not including 214 feet.
- **ADG VI:** 214 feet up to but not including 262 feet.

The critical aircraft at Flagstaff Pulliam Airport is expected to be the Boeing 737. This type of aircraft can weigh up to 128,000 pounds and has a wingspan of 93 feet (ADG-III). The approach speed of the aircraft is 138 knots (Category C). Thus, the airport reference code for design at Flagstaff Pulliam Airport is C-III.

The design standards used for planning facilities at Flagstaff Pulliam Airport are summarized in **Table 7A**. Runway 3-21 is currently 6,999 feet in length and 150 feet wide, with an ultimate length of 8,300 feet and a pavement strength of 60,000 pounds single wheel loading (SW), 150,000 pounds dual wheel loading (DW).

A parallel runway is not required during the planning period, however, an evaluation was made as to the appropriate location, design length and width should one be needed in the future. At the present time the airport is shut down whenever the runway is closed for repairs, maintenance or when a disabled aircraft is on the runway. The parallel taxiway becomes an emergency runway under these circumstances.

TABLE 7A
Design Standards
Flagstaff Pulliam Airport

	Runway	Taxiway	
Approach Category			
Runway & Taxiways	C	C	
Taxilanes (Westplex, N & S Apron)	A	B	
Airplane Design Group (ADG)			
Runways & Taxiways	III	III	
Taxilanes (Westplex N & S Apron)	I	II	
Critical Aircraft			
Runway & Taxiway	Boeing 737	Boeing 737	
Westplex	King Aire	Gulfstream II	
Description		**Dimensions (Feet)**	
	Existing	**Ultimate**	**Required[1]**
Runway Length	6,999	8,300	8,300
Runway Width	150	150	100
Taxiway Width	50	50	50
Taxilane Width (Westplex)	35	132[2]	35
Taxilane Width (N & S Apron)	20	35	35
Centerline Separations			
Taxilane - FMO (Minimum)		57.5	57.5
Runway - Runway	N/A	N/A	700
Runway - Parallel Taxiway	250	250	500
Runway - Aircraft Parking	300	500	500
Runway Obstacle Free Area			
Length [3]	1,000	1,000	1,000
Width	800	800	800
Runway Safety Area			
Length	8,999	10,300	10,300
Width	500	500	500
Runway Protection Zone			
Runway 3			
Inner width	500	500	500
Length	1,000	1,700	1,700
Outer Width	700	1,425	1,425
Runway 21			
Inner Width	500	1,000	1,000
Length	1,700	2,500	2,500
Outer Width	1,010	1,750	1,750
Building Restriction Line [4]	500	745	745
Runway Hold Line	250	250	250

Notes: [1] Source: FAA AC 150/300-12
[2] For dual taxilanes, ADG II aircraft
[3] Beyond Runway end.
[4] The Building Restriction Line (BRL) will vary depending on runway and terrain elevation. This table assumes the runway and terrain elevation are the same at points perpendicular to the runway, providing a minimum object clearance elevation of 35 feet at the BRL.

AIRPORT LAYOUT PLAN

The Airport Layout Plan (ALP) graphically presents the existing and ultimate airport layout and recommended improvements to meet forecast demand. The detailed airport and runway data are provided on the accompanying Airport Layout Plan, **Sheet No. 1,** to facilitate the interpretation of the master planning recommendations.

The ALP shows the primary improvements planned for the airfield, the terminal areas, and other landside facilities. The principle airfield recommendations result from the need to improve airfield capacity. Similarly the terminal and landside recommendations are planned to meet the existing and future market demands anticipated to impact landside facilities.

AIRSIDE IMPROVEMENTS

Initial improvement in airport capability will begin in Stage I with the installation of an Instrument Landing System (ILS) on Runway 21. The ILS will be equipped with a Medium Intensity Alignment Light System with Runway Alignment Indicator Lights (MALS-R), which will permit instrument operations at the airport when visibility is at least one half mile.

Weather instrumentation and reporting will be improved with the installation of weather instruments at both runway ends and an Automated Surface Observation System (ASOS). REIL's will be installed on Runway 3. During this stage of development, land will be acquired from the United States Forest Service (USFS) to support the ILS installation and the increase in the required area for a Runway Protection Zone (RPZ).

During Stage II, the increase in the number of B737 aircraft operating at the airport will require an overlay of the runway and taxiway to increase the wheel bearing strength. Medium Intensity Taxiway Lighting (MITL) will be installed in the Westplex area and High Intensity Runway Lights (HIRL) will be installed on the runway. The acquisition of additional land for the planned runway extension in Stage III will be initiated during the latter part of this period.

In Stage III, the runway and parallel taxiway will be extended to a length of 8,300 feet, which will require relocation of the airside facilities on Runway 21 (MALS-R, ILS Glideslope Antenna and VASI). HIRL/MITL will be installed on the runway/taxiway extensions. The West Taxiway into the Westplex area will also be extended during this period. A Runway Visual Range Indicator will be installed on Runway 21 providing pilots with another landing aid during periods of low visibility.

LANDSIDE IMPROVEMENTS

The initial phase of landside development in Stage I will focus on the expansion of the Westplex area and the establishment of a new commercial service terminal and apron.

Projects previously approved and funded will produce dual taxilanes, two new aprons and additional automobile parking in the Westplex area. Shamrell Boulevard is scheduled for improvements with pavement and lighting enhancements.

A major improvement will be the establishment of a new commercial service terminal building to meet growing passenger demands and needs. The terminal will be located in an area more central to the airport and require a new terminal apron and automobile parking. The new location will provide ample room for future expansion and provide the potential for more secure passenger service operations.

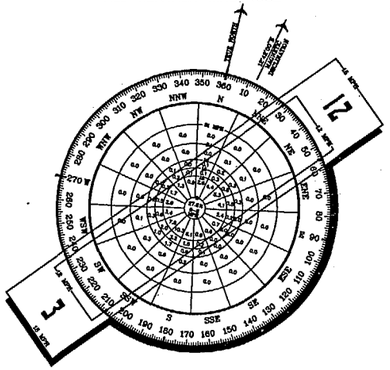
The commercial service terminal relocation will require the relocation of aircraft tiedowns

RUNWAY DATA	RUNWAY	
	EXISTING	ULTIMATE
RUNWAY CATEGORY	TRANSPORT	SAME
AIRPORT REFERENCE CODE	III/C	III/C
RUNWAY DIMENSIONS	6999' X 150'	8300' X 150'
RUNWAY BEARING	N 41°01'15" E	SAME
RUNWAY INSTRUMENTATION	VISUAL/NONPREC	NONPREC/PREC
RUNWAY SAFETY AREA	6999' X 500'	10,300' X 500'
RUNWAY OBSTACLE FREE AREA	800' X 1000'	800' X 1000'
RUNWAY OBSTACLE FREE ZONE	7399' X 413'	8700' X 413'
RUNWAY APPROACH SURFACES	20:1/34:1	34:1/50:1
RUNWAY LIGHTING	MIRL	HIRL
RUNWAY MARKING	NONPREC/NONPREC	NONPREC/PREC
EFFECTIVE RUNWAY GRADIENT (in %)	.23%	.26%
PAVEMENT MATERIAL	ASPHALT W/PFC	ASPHALT W/PFC
PAVEMENT STRENGTH (in thousand lbs.)	30S,95D,140DTW	60S,150D
TAXIWAY LIGHTING	MITL	MITL
TAXIWAY MARKING	CENTERLINE/EDGE	CENTERLINE/EDGE

*Pavement strengths are expressed in single (S), dual (D), dual tandem (DT), and/or double dual tandem (DDT), wheel loading capacities.

BUILDINGS/FACILITIES		
EXISTING	ULTIMATE	DESCRIPTION
(2)	(2)	TERMINAL BUILDING
(3)		AIR TRAFFIC CONTROL TOWER (ATCT)
(4)		AIRPORT RESCUE and FIREFIGHTING (ARFF)
(5)	(5)	FIXED BASE OPERATION (FBO) HANGAR
(6)	(6)	CORPORATE HANGAR
(7)	(7)	T-HANGAR
(8)	(8)	SHADE HANGAR
(9)		PORT-A-PORT HANGARS
	(11)	POTENTIAL MLOS SITE
(10)	(10)	NEXRAD FACILITY-NATIONAL WEATHER SERVICE (NWS)
	(17)	AUTOMATED SURFACE OBSERVATION SYSTEM
	(18)	WEATHER-BALLOON INFLATION FACILITY
(20)		NON-DIRECTIONAL RADIOBEACON
(21)	(21)	WEATHER INSTRUMENTS
(23)		FUEL FACILITY-ABOVE GROUND STORAGE
	(25)	LIGHTNING DETECTOR
	(29)	RUNWAY VISUAL RANGE INDICATOR (RVR)
	(30)	AIRCRAFT WASH RACK
(31)	(31)	HELIPADS

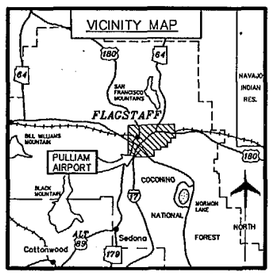
ALL WEATHER WIND ROSE



SOURCE:
NOAA National Climatic Center
Asheville, N.C.
PULLIAM AIRPORT
Flagstaff, AZ.
OBSERVATIONS:
46,546 Observations
1962-1978

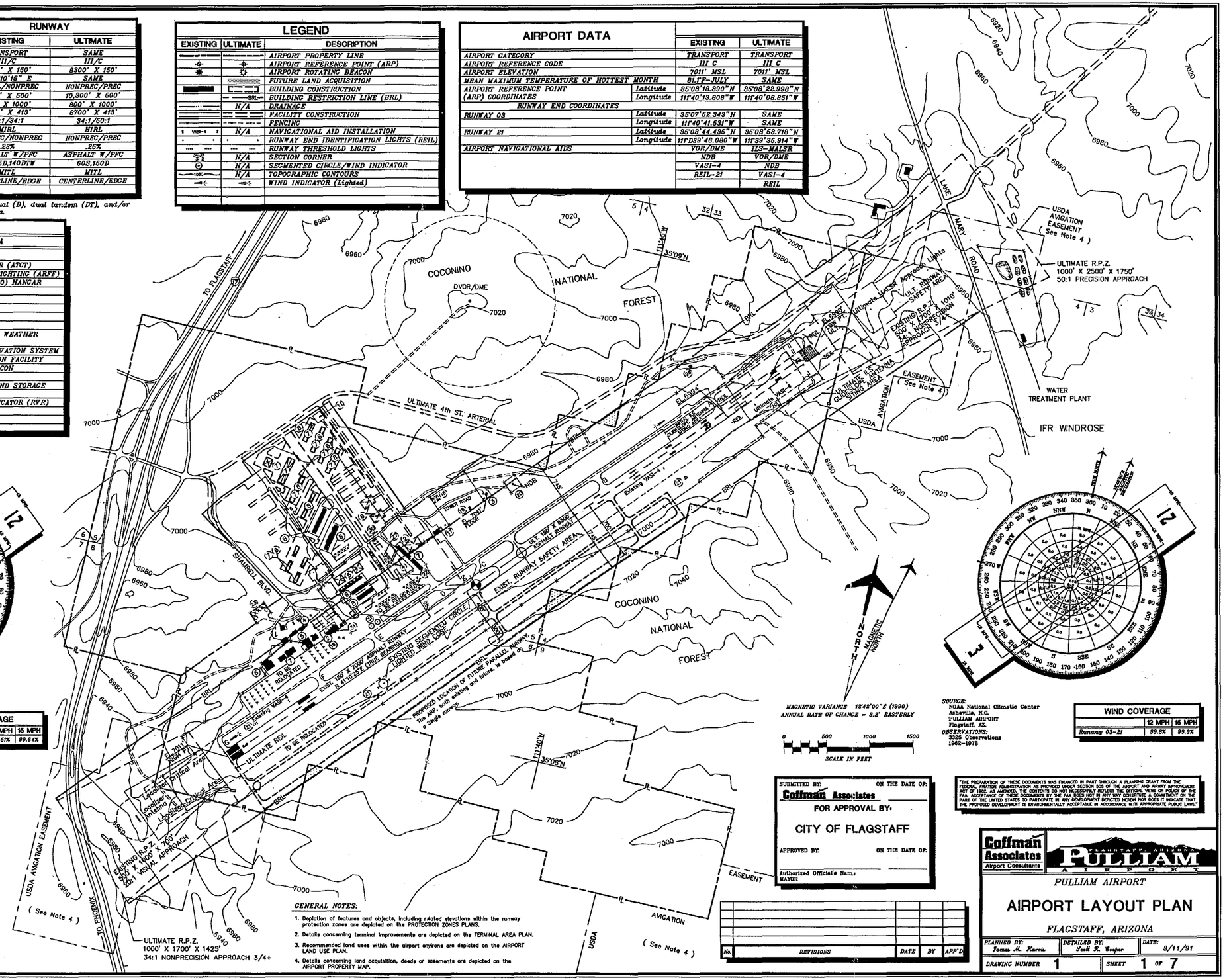
WIND COVERAGE		
	12 MPH	15 MPH
Runway 03-21	98.61%	99.64%

VICINITY MAP



LEGEND		
EXISTING	ULTIMATE	DESCRIPTION
		AIRPORT PROPERTY LINE
		AIRPORT REFERENCE POINT (ARP)
		AIRPORT ROTATING BEACON
		FUTURE LAND ACQUISITION
		BUILDING CONSTRUCTION
BRL	BRL	BUILDING RESTRICTION LINE (BRL)
N/A		DRAINAGE
		FACILITY CONSTRUCTION
		FENCING
VASI-4	N/A	NAVIGATIONAL AID INSTALLATION
		RUNWAY END IDENTIFICATION LIGHTS (REIL)
		RUNWAY THRESHOLD LIGHTS
3505	N/A	SECTION CORNER
	N/A	SEGMENTED CIRCLE/WIND INDICATOR
1080	N/A	TOPOGRAPHIC CONTOURS
		WIND INDICATOR (Lighted)

AIRPORT DATA		EXISTING	ULTIMATE
AIRPORT CATEGORY		TRANSPORT	TRANSPORT
AIRPORT REFERENCE CODE		III C	III C
AIRPORT ELEVATION		7011' MSL	7011' MSL
MEAN MAXIMUM TEMPERATURE OF HOTTEST MONTH		81.1°F-JULY	SAME
AIRPORT REFERENCE POINT (ARP) COORDINATES	Latitude	35°08'18.390"N	35°08'22.998"N
	Longitude	111°40'13.808"W	111°40'08.851"W
RUNWAY END COORDINATES			
RUNWAY 03	Latitude	35°07'52.348"N	SAME
	Longitude	111°40'41.631"W	SAME
RUNWAY 21	Latitude	35°08'44.435"N	35°08'53.718"N
	Longitude	111°39'46.080"W	111°39'35.914"W
AIRPORT NAVIGATIONAL AIDS		VOR/DME	ILS-MALSR
		NDB	VOR/DME
		VASI-4	NDB
		REIL-21	VASI-4
			REIL



IFR WINDROSE

MAGNETIC VARIANCE 12°48'00"E (1990)
ANNUAL RATE OF CHANGE = 3.2' EASTERLY

0 500 1000 1500
SCALE IN FEET

SOURCE:
NOAA National Climatic Center
Asheville, N.C.
PULLIAM AIRPORT
Flagstaff, AZ.
OBSERVATIONS:
3325 Observations
1962-1978

WIND COVERAGE		
	12 MPH	15 MPH
Runway 03-21	99.6%	99.9%

GENERAL NOTES:

1. Depiction of features and objects, including related elevations within the runway protection zones are depicted on the PROTECTION ZONES PLANS.
2. Details concerning terminal improvements are depicted on the TERMINAL AREA PLAN.
3. Recommended land uses within the airport environs are depicted on the AIRPORT LAND USE PLAN.
4. Details concerning land acquisition, deeds or easements are depicted on the AIRPORT PROPERTY MAP.

SUBMITTED BY: Coffman Associates ON THE DATE OF:
FOR APPROVAL BY:
CITY OF FLAGSTAFF
APPROVED BY: ON THE DATE OF:
Authorized Official's Name
MAYOR

"THE PREPARATION OF THESE DOCUMENTS WAS FINANCED IN PART THROUGH A PLANNING GRANT FROM THE FEDERAL AVIATION ADMINISTRATION AS PROVIDED UNDER SECTION 505 OF THE AIRPORT AND AIRWAY IMPROVEMENT ACT OF 1982, AS AMENDED. THE CONTENTS DO NOT NECESSARILY REFLECT THE OFFICIAL VIEWS OR POLICY OF THE FAA. ACCEPTANCE OF THESE DOCUMENTS BY THE FAA DOES NOT IN ANY WAY CONSTITUTE A COMMITMENT ON THE PART OF THE UNITED STATES TO PARTICIPATE IN ANY DEVELOPMENT DEPICTED HEREIN NOR DOES IT INDICATE THAT THE PROPOSED DEVELOPMENT IS ENVIRONMENTALLY ACCEPTABLE IN ACCORDANCE WITH APPROPRIATE PUBLIC LAWS."

No.	REVISIONS	DATE	BY	APP'D

Coffman Associates — Airport Consultants

FLAGSTAFF, ARIZONA — PULLIAM AIRPORT

PULLIAM AIRPORT

AIRPORT LAYOUT PLAN

FLAGSTAFF, ARIZONA

PLANNED BY:	DETAILED BY:	DATE:
James M. Harris	Jodi R. Taylor	3/11/91
DRAWING NUMBER 1	SHEET 1 OF 7	

and hangars. Most of the facility relocations are also required in order to comply with FAA Airport Design standards. A major component of the development program is to construct and relocate facilities in order to comply with these guidelines. The only access route to the new terminal building will be from Shamrell Boulevard via Tower Road until construction of the Fourth Street arterial by the City of Flagstaff.

In Stage II, a new access road to the terminal is planned for construction. The timing of this project is predicated on the construction of the new Fourth Street arterial. This will produce an alternate access route to the airport and provide the opportunity to isolate general aviation activities from commercial service activities. Relocation of tiedowns and hangars will continue in this stage as well. The acquisition of additional land to support a 1,300 foot runway extension is also planned during this period.

In Stage III, the primary focus of airport development will be the expansion of the Westplex area to accommodate the remaining hangars and tiedowns still remaining in prohibited areas of the airport. Automobile parking will be expanded and another access road constructed from Shamrell Boulevard to the western portion of the Westplex area, providing access to hangar parking when the taxilane is constructed to the southern half of the Westplex.

Additional expansion of the commercial service terminal is planned, which includes the automobile parking, apron and terminal building. Pavement maintenance programs will be conducted at particular points in the planning period to insure the continued serviceability of the airfield pavements.

TERMINAL AREA PLAN

The Terminal Area is depicted on Sheet No. 2. This plan provides a more detailed examination of airport development in the terminal area and includes the defined staging of development projects.

The major facilities depicted on this plan include the relocation of tiedowns and hangars. The FBO facilities will be relocated into an area where they can better serve the general aviation public. The designation of local and transient tiedown areas will be flexible in order to facilitate the relocation plans. Ultimately, the tiedowns located east of the new FBO facilities will be reserved for transient aircraft.

Hangars and tiedowns in the Westplex area have been designed to allow a mix of ADG I and II aircraft without constraints on movement within the area. ADG I facilities have been sited in order to avoid the possibility of moving them later when the taxilanes are widened to accommodate ADG II aircraft.

The new terminal area will provide an opportunity to eliminate automobile traffic crossing the West Taxiway in the Westplex area when the 4th Street arterial is constructed. Tower Road will be realigned south of the West Taxiway and auto traffic terminated at this point. Ultimately, the two-lane access road from Fourth Street will be widened to accommodate four-lanes of traffic.

Another important aspect of the terminal area plan is the establishment of a new fuel storage facility with above ground fuel storage capacity. The existing underground fuel storage tanks will be rinsed and filled with an inert substance or removed as new storage capacity is added to the airport.

The primary objective of the terminal area development plan is to utilize, to the maximum extent possible, the property on the west side of the primary runway. Although difficult terrain will be encountered in some circumstances, the airport will be able to accommodate all projected growth during the

planning period and eliminate all hangars and tiedowns from prohibited areas.

AIRSPACE PLANS

Several drawings in the plan set provide varying levels of detail on the airspace associated with ultimate development at Flagstaff Pulliam Airport. These include the F.A.R. Part 77 Airspace Plan, Approach Zones Plan, and Protection Zones Plan.

PART 77 AIRSPACE PLAN

The Airspace Plan for Flagstaff Pulliam Airport is based on Federal Aviation Regulations (F.A.R.) Part 77, **Objects Affecting Navigable Airspace.** In order to protect the airspace and approaches to each end of the runway from hazards that could affect the safe and efficient operation of the airport, federal criteria has been established (F.A.R. Part 77). These criteria were developed for use by local planning and land use jurisdictions to control the height of objects in the vicinity of the airports. The Part 77 Airspace Plan presented on **Sheet No. 3** is a graphic depiction of these criteria. This drawing, when used as an overlay to and in conjunction with an Airport Height and Hazard Zoning Ordinance, will permit surrounding jurisdictions to readily determine if construction of a proposed structure in the vicinity of the airport will penetrate any of the proposed airspace surfaces.

The Part 77 Plan also lists existing obstructions, their impact on future airport development and plans for their recommended disposition, if necessary. Design criteria for surface heights, angles and radii on this plan are determined by airport category and runway approach instrumentation. The Airspace Plan for Flagstaff Pulliam Airport is based on large aircraft with precision instrument landing capability on Runway 21.

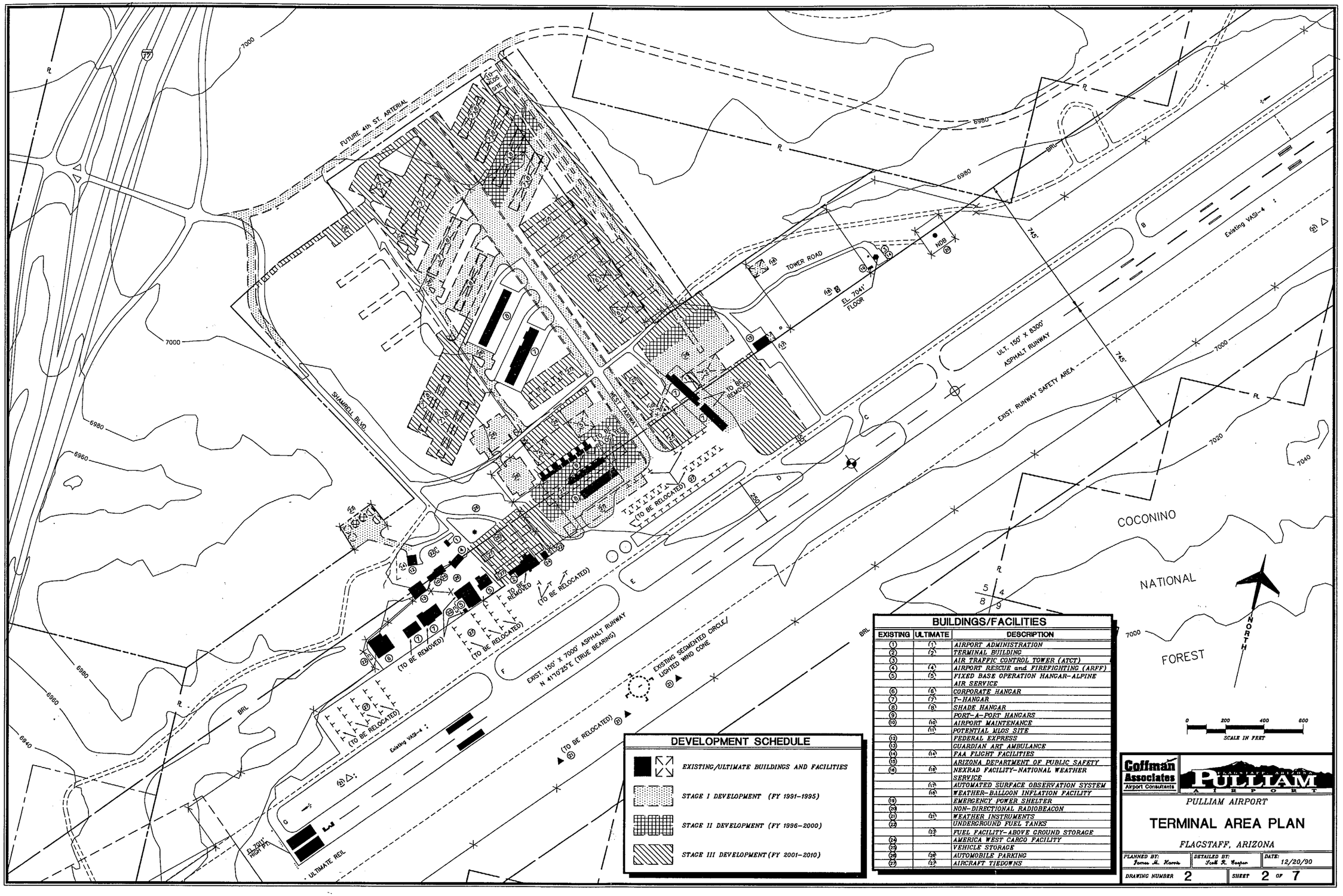
Existing obstructions at the airport are both on and off airport property and penetrate the primary, transition, horizontal and conical surfaces. Most are trees and terrain, while other obstructions are associated with airfield operations and are fixed by their functional purpose. These latter facilities all have obstruction lighting and were approved by the Federal Aviation Administration prior to construction. A description and recommended disposition for each of the obstructions can be found on **Sheet No. 3.**

Some trees and terrain not currently an obstruction to the existing runway will become obstructions when the airport has a precision instrument approach and runway extension. All of these obstructions are indicated in the appropriate surfaces on **Sheet 3** and those associated with the approaches and runway protection zones, are illustrated in more detail on **Sheets No. 4 and 5.**

APPROACH ZONES PLAN

The Approach Zones Plan is a profile representations of the approach surfaces off each end of the runway. The plan depicts the physical features in the vicinity of each runway's extended centerline, including significant topographic changes, roadways and power lines. The dimensions and angles of the approach surfaces are also a function of the airport category and runway instrumentation.

The ultimate approach criteria at Flagstaff Pulliam Airport is based upon a precision approach to Runway 21 and a nonprecision approach to Runways 3. A precision approach system dictates an approach slope of 50:1 for the inner 10,000 feet and 40:1 for an additional 40,000 feet. The criteria for a nonprecision approach is less stringent,



DEVELOPMENT SCHEDULE

- EXISTING/ULTIMATE BUILDINGS AND FACILITIES
- STAGE I DEVELOPMENT (FY 1991–1995)
- STAGE II DEVELOPMENT (FY 1996–2000)
- STAGE III DEVELOPMENT (FY 2001–2010)

BUILDINGS/FACILITIES

EXISTING	ULTIMATE	DESCRIPTION
(1)	(1)	AIRPORT ADMINISTRATION
(2)	(2)	TERMINAL BUILDING
(3)		AIR TRAFFIC CONTROL TOWER (ATCT)
(4)	(4)	AIRPORT RESCUE and FIREFIGHTING (ARFF)
(5)	(5)	FIXED BASE OPERATION HANGAR-ALPINE AIR SERVICE
(6)	(6)	CORPORATE HANGAR
(7)	(7)	T-HANGAR
(8)	(8)	SHADE HANGAR
(9)		PORT-A-PORT HANGARS
(10)	(10)	AIRPORT MAINTENANCE
	(11)	POTENTIAL NLOS SITE
(12)		FEDERAL EXPRESS
(13)		GUARDIAN ART AMBULANCE
(14)	(14)	FAA FLIGHT FACILITIES
(15)		ARIZONA DEPARTMENT OF PUBLIC SAFETY
(16)	(16)	NEXRAD FACILITY-NATIONAL WEATHER SERVICE
	(17)	AUTOMATED SURFACE OBSERVATION SYSTEM
	(18)	WEATHER-BALLOON INFLATION FACILITY
(19)		EMERGENCY POWER SHELTER
(20)		NON-DIRECTIONAL RADIOBEACON
(21)	(21)	WEATHER INSTRUMENTS
(22)		UNDERGROUND FUEL TANKS
	(23)	FUEL FACILITY-ABOVE GROUND STORAGE
(24)		AMERICA WEST CARGO FACILITY
(25)		VEHICLE STORAGE
(26)	(26)	AUTOMOBILE PARKING
(27)	(27)	AIRCRAFT TIEDOWNS

0 200 400 800
SCALE IN FEET

Coffman Associates
Airport Consultants

FLAGSTAFF, ARIZONA
PULLIAM AIRPORT

PULLIAM AIRPORT

TERMINAL AREA PLAN

FLAGSTAFF, ARIZONA

PLANNED BY:	DETAILED BY:	DATE:
James M. Kovis	Scott R. Cooper	12/20/90

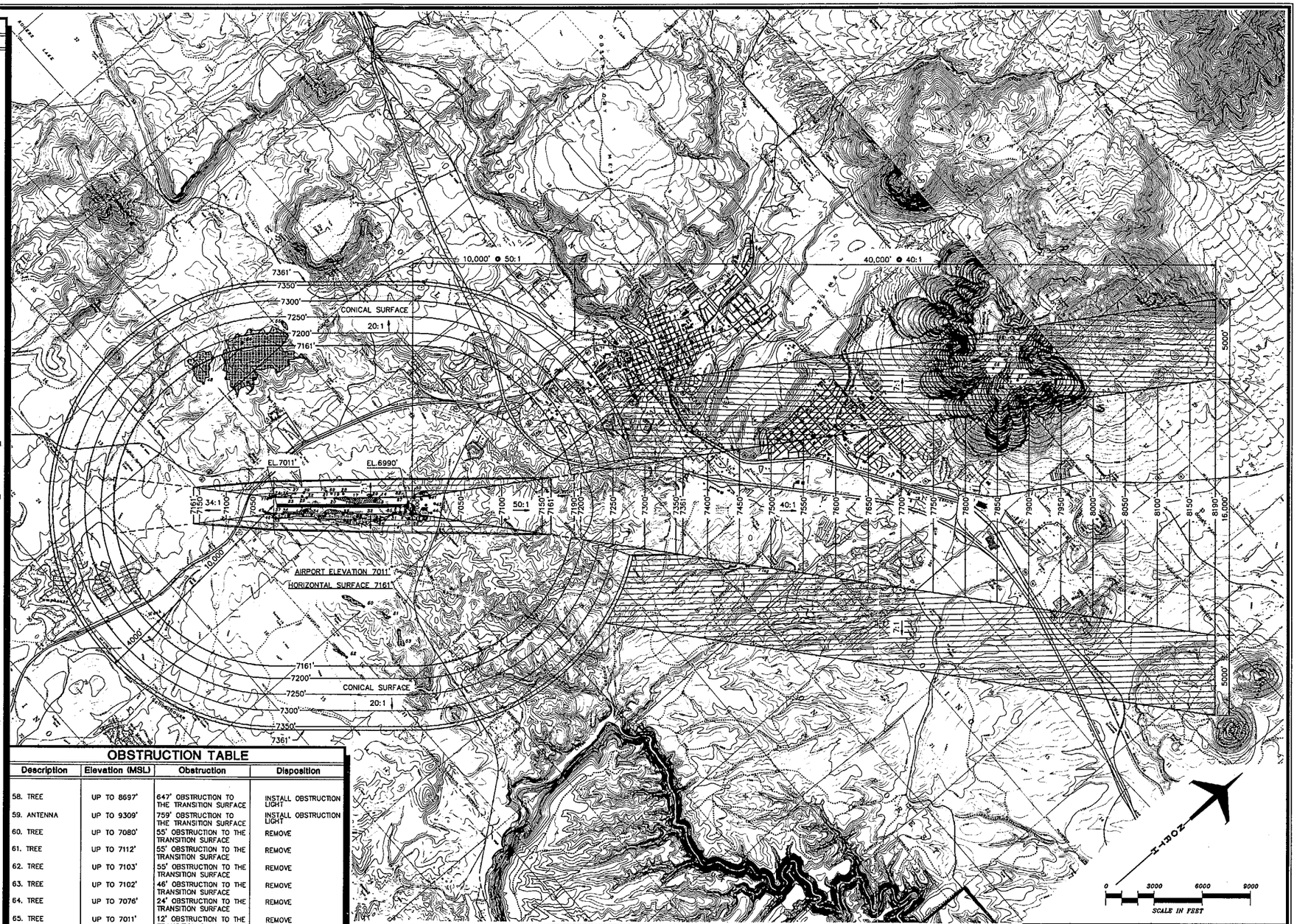
DRAWING NUMBER 2 | SHEET 2 OF 7

OBSTRUCTION TABLE

Description	Elevation (MSL)	Obstruction	Disposition
1. TREE	UP TO 7025'	15' OBSTRUCTION TO THE PRIMARY SURFACE	REMOVE
2. GROUND	UP TO 7016'	6' OBSTRUCTION TO THE PRIMARY SURFACE	REMOVE
3. OBS. LIGHT–ANEMOMETER	UP TO 7038'	28' OBSTRUCTION TO THE PRIMARY SURFACE	TO BE RELOCATED
4. OBS. LIGHT–TETRAHEDRON	UP TO 7048'	39' OBSTRUCTION TO THE PRIMARY SURFACE	REMOVE
5. TREE	UP TO 7071'	69' OBSTRUCTION TO THE PRIMARY SURFACE	REMOVE
6. TREE	UP TO 7012'	18' OBSTRUCTION TO THE PRIMARY SURFACE	REMOVE
7. TREE	UP TO 7032'	37' OBSTRUCTION TO THE PRIMARY SURFACE	REMOVE
8. TREE	UP TO 7060'	57' OBSTRUCTION TO THE TRANSITION SURFACE	REMOVE
9. TREE	UP TO 7056'	61' OBSTRUCTION TO THE PRIMARY SURFACE	REMOVE
10. TREE	UP TO 7060'	28' OBSTRUCTION TO THE TRANSITION SURFACE	REMOVE
11. TREE	UP TO 7047'	52' OBSTRUCTION TO THE PRIMARY SURFACE	REMOVE
12. TREE	UP TO 7050'	55' OBSTRUCTION TO THE APPROACH SURFACE	REMOVE
13. TREE	UP TO 7025'	30' OBSTRUCTION TO THE PRIMARY SURFACE	REMOVE
14. OBS. LIGHT–WINDSOCK	UP TO 7031'	33' OBSTRUCTION TO THE PRIMARY SURFACE	NOTED
15. GROUND	UP TO 7008'	10' OBSTRUCTION TO THE PRIMARY SURFACE	REMOVE
16. TREE	UP TO 7027'	29' OBSTRUCTION TO THE PRIMARY SURFACE	REMOVE
17. GROUND	UP TO 7009'	11' OBSTRUCTION TO THE PRIMARY SURFACE	REMOVE
18. TREE	UP TO 7019'	21' OBSTRUCTION TO THE PRIMARY SURFACE	REMOVE
19. TREE	UP TO 7024'	24' OBSTRUCTION TO THE PRIMARY SURFACE	REMOVE
20. GROUND	UP TO 7005'	5' OBSTRUCTION TO THE PRIMARY SURFACE	REMOVE
21. BUILDING	UP TO 7004'	4' OBSTRUCTION TO THE PRIMARY SURFACE	REMOVE
22. LIGHT POLE	UP TO 7033'	24' OBSTRUCTION TO THE PRIMARY SURFACE	REMOVE
23. LIGHT POLE	UP TO 7028'	17' OBSTRUCTION TO THE PRIMARY SURFACE	INSTALL OBSTRUCTION LIGHT
24. TREE	UP TO 7050'	37' OBSTRUCTION TO THE TRANSITION SURFACE	REMOVE
25. TREE	UP TO 7146'	21' OBSTRUCTION TO THE TRANSITION SURFACE	REMOVE
26. ANTENNA	UP TO 7053'	26' OBSTRUCTION TO THE TRANSITION SURFACE	INSTALL OBSTRUCTION LIGHT
27. TREE	UP TO 7075'	25' OBSTRUCTION TO THE TRANSITION SURFACE	REMOVE
28. ANTENNA – ON TANK	UP TO 7069'	37' OBSTRUCTION TO THE TRANSITION SURFACE	NOTED
29. TREE	UP TO 7039'	25' OBSTRUCTION TO THE TRANSITION SURFACE	REMOVE
30. TREES	UP TO 7036'	27' OBSTRUCTION TO THE TRANSITION SURFACE	REMOVE
31. TREES	UP TO 7015'	10' OBSTRUCTION TO THE TRANSITION SURFACE	REMOVE
32. TREES	UP TO 7054'	53' OBSTRUCTION TO THE TRANSITION SURFACE	REMOVE
33. TREES	UP TO 7072'	69' OBSTRUCTION TO THE TRANSITION SURFACE	REMOVE
34. TREES	UP TO 7054'	48' OBSTRUCTION TO THE PRIMARY SURFACE	REMOVE
35. TREES	UP TO 7086'	62' OBSTRUCTION TO THE TRANSITION SURFACE	REMOVE
36. TREES	UP TO 7064'	56' OBSTRUCTION TO THE PRIMARY SURFACE	REMOVE
37. TREES	UP TO 7072'	61' OBSTRUCTION TO THE PRIMARY SURFACE	REMOVE
38. TREES	UP TO 7057'	60' OBSTRUCTION TO THE TRANSITION SURFACE	REMOVE
39. ANTENNA–ON BEACON	UP TO 7081'	30' OBSTRUCTION TO THE TRANSITION SURFACE	INSTALL OBSTRUCTION LIGHT
40. TREES	UP TO 7034'	26' OBSTRUCION TO THE APPROACH SURFACE	REMOVE
41. TREES	UP TO 7055'	39' OBSTRUCTION TO THE APPROACH SURFACE	REMOVE
42. TREES	UP TO 7048'	34' OBSTRUCTION TO THE APPROACH SURFACE	REMOVE
43. TREES	UP TO 7061'	37' OBSTRUCTION TO THE APPROACH SURFACE	REMOVE
44. TREES	UP TO 7075'	62' OBSTRUCTION TO THE APPROACH SURFACE	REMOVE
45. TREES	UP TO 7043'	26' OBSTRUCTION TO THE APPROACH SURFACE	REMOVE
46. TREES	UP TO 7050'	28' OBSTRUCTION TO THE APPROACH SURFACE	REMOVE
47. TREES	UP TO 7043'	15' OBSTRUCTION TO THE APPROACH SURFACE	REMOVE
48. TREES	UP TO 7195'	34' OBSTRUCTION TO THE HORIZONTAL SURFACE	REMOVE
49. TREES	UP TO 7214'	53' OBSTRUCTION TO THE HORIONTAL SURFACE	REMOVE
50. TREES	UP TO 7173'	12' OBSTRUCTION TO THE HORIZONTAL SURFACE	REMOVE
51. TREES	UP TO 7178'	17' OBSTRUCTION TO THE HORIZONTAL SURFACE	REMOVE
52. TREES	UP TO 7175'	14' OBSTRUCTION TO THE HORIZONTAL SURFACE	REMOVE
53. TREES	UP TO 7175'	14' OBSTRUCTION TO THE HORIZONTAL SURFACE	REMOVE
54. TREES	UP TO 7218'	41' OBSTRUCTION TO THE CONICAL SURFACE	REMOVE
55. TREES	UP TO 7246'	15' OBSTRUCTION TO THE CONICAL SURFACE	REMOVE
56. TREES	UP TO 8856'	616' OBSTRUCTION TO THE TRANSITION SURFACE	INSTALL OBSTRUCTION LIGHT
57. ANTENNA	UP TO 9388'	1248' OBSTRUCTION TO THE TRANSITION SURFACE	INSTALL OBSTRUCTION LIGHT

OBSTRUCTION TABLE

Description	Elevation (MSL)	Obstruction	Disposition
58. TREE	UP TO 8697'	647' OBSTRUCTION TO THE TRANSITION SURFACE	INSTALL OBSTRUCTION LIGHT
59. ANTENNA	UP TO 9309'	759' OBSTRUCTION TO THE TRANSITION SURFACE	INSTALL OBSTRUCTION LIGHT
60. TREE	UP TO 7080'	55' OBSTRUCTION TO THE TRANSITION SURFACE	REMOVE
61. TREE	UP TO 7112'	55' OBSTRUCTION TO THE TRANSITION SURFACE	REMOVE
62. TREE	UP TO 7103'	55' OBSTRUCTION TO THE TRANSITION SURFACE	REMOVE
63. TREE	UP TO 7102'	46' OBSTRUCTION TO THE TRANSITION SURFACE	REMOVE
64. TREE	UP TO 7076'	24' OBSTRUCTION TO THE TRANSITION SURFACE	REMOVE
65. TREE	UP TO 7011'	12' OBSTRUCTION TO THE TRANSITION SURFACE	REMOVE
66. TREE	UP TO 7074'	75' OBSTRUCTION TO THE TRANSITION SURFACE	REMOVE
67. TREE	UP TO 7031'	36' OBSTRUCTION TO THE PRIMARY SURFACE	REMOVE
68. TREE	UP TO 7043'	19' OBSTRUCTION TO THE TRANSITION SURFACE	REMOVE
69. TREE	UP TO 7036'	1' OBSTRUCTION TO THE TRANSITION SURFACE	REMOVE
70. TREE	UP TO 7053'	1' OBSTRUCTION TO THE TRANSITION SURFACE	REMOVE
71. TREE	UP TO 7028'	5' OBSTRUCTION TO THE APPROACH SURFACE	REMOVE
72. TREE	UP TO 7011'	81' OBSTRUCTION TO THE PRIMARY SURFACE	REMOVE



OBSTRUCTION LEGEND

- ▲' OBSTRUCTION
- WOODED AREA PENETRATES PRIMARY, TRANSITIONAL, HORIZONTAL AND CONICAL SURFACES.
- GROUND AREA PENETRATES PRIMARY AND TRANSITIONAL SURFACES.

Obstructions obtained from N.O.S Obstruction Chart 5034 May, 1990.

GENERAL NOTES:

1. Obstructions, clearances, and locations are calculated from ultimate runway end elevations and ultimate approach surfaces, unless otherwise noted.
2. Depiction of features and objects within the outer portion of the approach surfaces, is illustrated on the APPROACH ZONES PROFILES, sheet 4 of 6, of these plans.
3. Depiction of features and objects within the inner portion of the approach surfaces, is illustrated on the PROTECTION ZONES PLAN, sheet 5 of 6, of these plans.
4. The obstructions indicated on the Part 77 Airspace Plans were obtained from NOAA Obstruction Chart 0C–5034, dated November 1990. A field survey should be conducted to ascertain the location and height of any obstruction listed on these plans.

Coffman Associates — Airport Consultants

FLAGSTAFF, ARIZONA — PULLIAM AIRPORT

PULLIAM AIRPORT

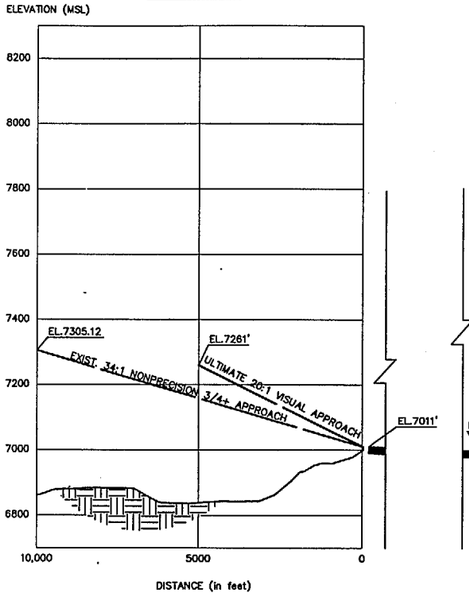
PART 77 AIRSPACE PLAN

FLAGSTAFF, ARIZONA

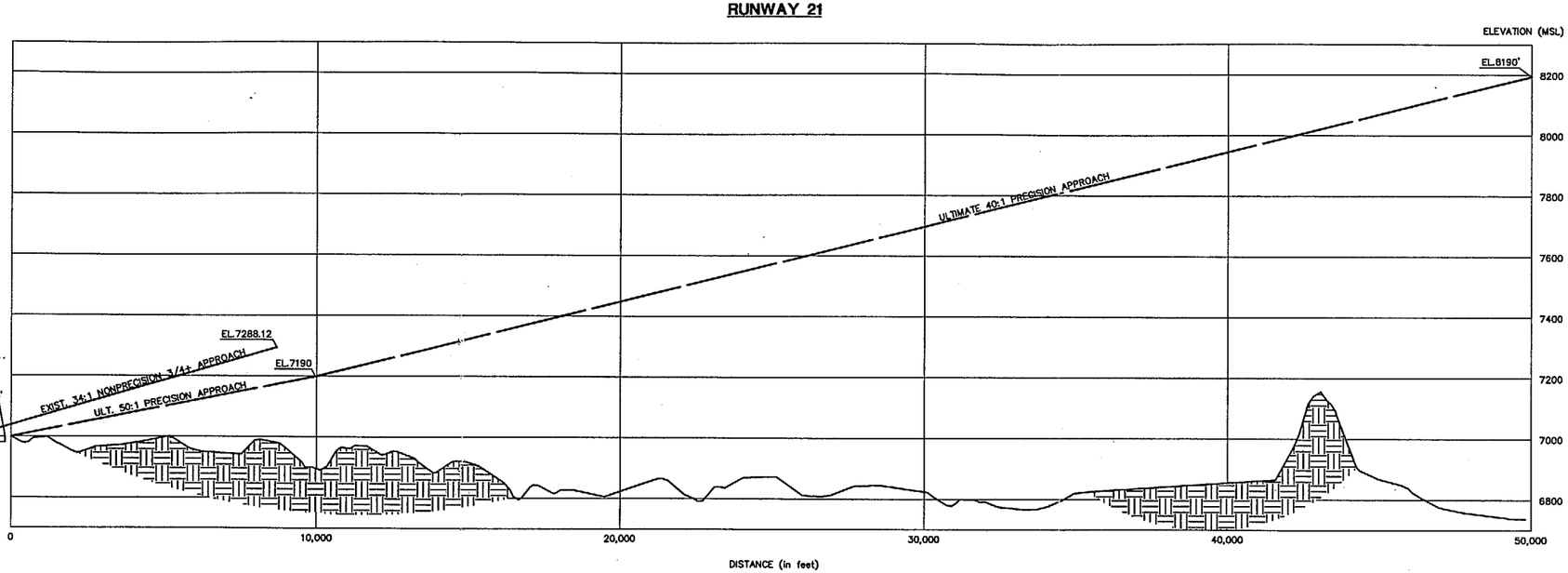
PLANNED BY:	DETAILED BY:	DATE:
James M. Harris	Scott R. Cooper	12/27/90

DRAWING NUMBER 3 | SHEET 3 OF 7

RUNWAY 3



RUNWAY 21



RUNWAY 3 - 21 APPROACH ZONES PROFILES

HORIZONTAL SCALE 0 2000 4000 6000 SCALE IN FEET

VERTICAL SCALE 0 200 400 600 SCALE IN FEET

GENERAL NOTES:

1. The obstructions indicated on the Part 77 Airspace Plans were obtained from NOAA Obstruction Chart OC-5034, dated November 1990. A field survey should be conducted to ascertain the location and height of any obstruction listed on these plans.
2. See Sheet #3, Part 77 Airspace Plan, for obstructions #40,41,42,43, and 44 in the Approach Surface to Runway 21 and obstructions #45,46,47 and 71 in the Approach Surface to Runway 3.

Coffman Associates Airport Consultants

PULLIAM AIRPORT

PULLIAM AIRPORT

APPROACH ZONES PLAN

FLAGSTAFF, ARIZONA.

PLANNED BY:	DETAILED BY:	DATE:
James M. Harris	Scott R. Cooper	12/12/90

DRAWING NUMBER 4 SHEET 4 OF 7

requiring an approach slope of 34:1 for 10,000 feet. **Sheet No. 4** depicts the current and future approach zone profiles for Runway 3-21. This sheet also indicates any obstructions found in the approach surfaces to these runways.

RUNWAY PROTECTION ZONES PLAN

The Runway Protection Zones (RPZ) Plan consists of a large scale plan and profile view of the inner portions of the approach surfaces. This plan is designed to facilitate identification of the roadways, rail lines, utility lines, structures and other possible obstructions that may lie within the confines of these critical operations areas at the ends of each runway.

Sheet No. 5 depicts the protection zones for the existing and future conditions for Runway 3-21. The RPZ for the existing Runway 21 approach is based upon a nonprecision instrument approach criteria and measures 500 ft X 1,700 ft X 1,010 ft. The RPZ for the future approach to Runway 21 is a precision approach, 1,000 ft X 2,500 ft X 1,750 ft.

The existing approach to Runway 3 is a visual approach with an RPZ measuring 500 X 1,000 X 700. The future RPZ has a larger size dictated by the nonprecision approach anticipated for the runway and measures, 1,000 X 1,700 X 1,425. There are obstructions to the imaginary surface in the RPZ for both Runway 3 and 21 as indicated on **Sheet No. 5.**

AIRPORT LAND USE PLAN

The purpose of the Airport Land Use Plan is to establish uses of the airport property in a manner compatible with its distinct operational activities. The plan depicts both on and off-airport land use recommendations.

ON-AIRPORT LAND USE PLAN

On-airport land use planning is important to orderly development and efficient use of available space.

The on-airport land use plan is designed to provide the basic guidance for Airport Management to make decisions related to future development of Flagstaff Pulliam Airport. The plan provides for development of both short range and long range development needs. Flexibility has been designed into the plan to allow for development beyond the standard twenty year master plan forecast. This will provide management with several options to pursue in marketing the airport.

The Airport Land Use Plan is depicted on **Sheet No. 6.** Two land use categories have been identified: airfield operations and aviation-related.

- **Airfield Operations**

Airfield operation is the most critical category of land use since it includes all areas necessary for safe operation of aircraft on the airport. At Flagstaff Pulliam Airport this includes the existing and proposed runway, associated parallel taxiway and taxiway exits, and areas within the building restriction lines and the runway protection zones.

The included items are runway and taxiway safety areas, runway approaches (where clearance is not adequate to permit other uses), and areas where navaids will be located.

- **Aviation Related**

Aviation related land uses are the passenger terminal (which include all facilities associated with the passenger terminal area), auto parking, fixed base operators (FBO's), and support facilities. Support facilities include air traffic control, airport rescue and

firefighting facilities, airport maintenance and airport utilities. Also included are facilities such as rental car service and storage, as well as fuel storage.

Following the general recommendations of the plan, the airport can maintain a long term viability and provide first-class air transportation services to its users.

OFF-AIRPORT LAND USE PLAN

The purpose of the land use compatibility plan is to describe a pattern of land uses around the airport which will be most compatible with activities on the site. The importance of the airport to local and regional economic growth indicates the need for area governmental jurisdictions to protect this significant investment. Two primary concerns are maintaining land use compatibility by minimizing impacts due to aircraft noise and prevention of obstructions within the imaginary surfaces of the airport to promote safety and efficiency of operations.

Operational Protection

Development within the existing and future RPZ for Runway 3 can be controlled by the airport, since all of the RPZ is contained within airport property or the avigation easement held with the USFS. However, a portion of the RPZ for Runway 21 lies outside of the property line at the present time and is not under the control of the airport. The installation of the ILS, will result in a larger runway protection zone and approximately 45 acres of property will have to be acquired in order to bring the RPZ under airport control. The land affected by this acquisition is controlled by the USFS.

In Stage III, when the runway is extended an additional 1,300 feet, another land acquisition process will be required in order to facilitate the runway extension and RPZ.

Large airspace areas (as defined on **Sheet No. 3**) can be affected by development off airport and the height of objects within these areas must be controlled. Zoning is generally the most reasonable and effective means of protecting the airport airspace from penetrations by objects. The Part 77 Airspace Plan, illustrated on **Sheet No. 3**, can be used as the guideline for local zoning and federal agency cooperation.

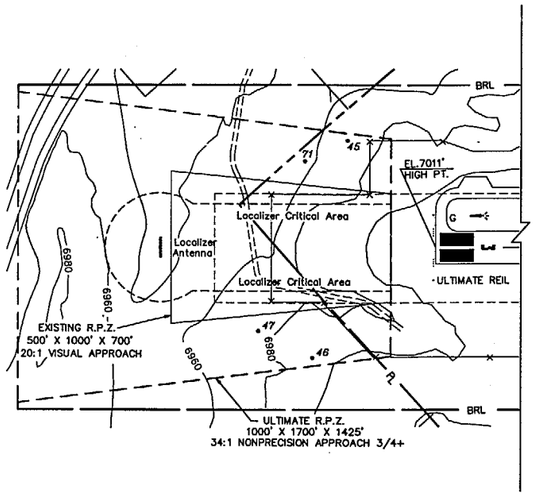
Noise Compatibility

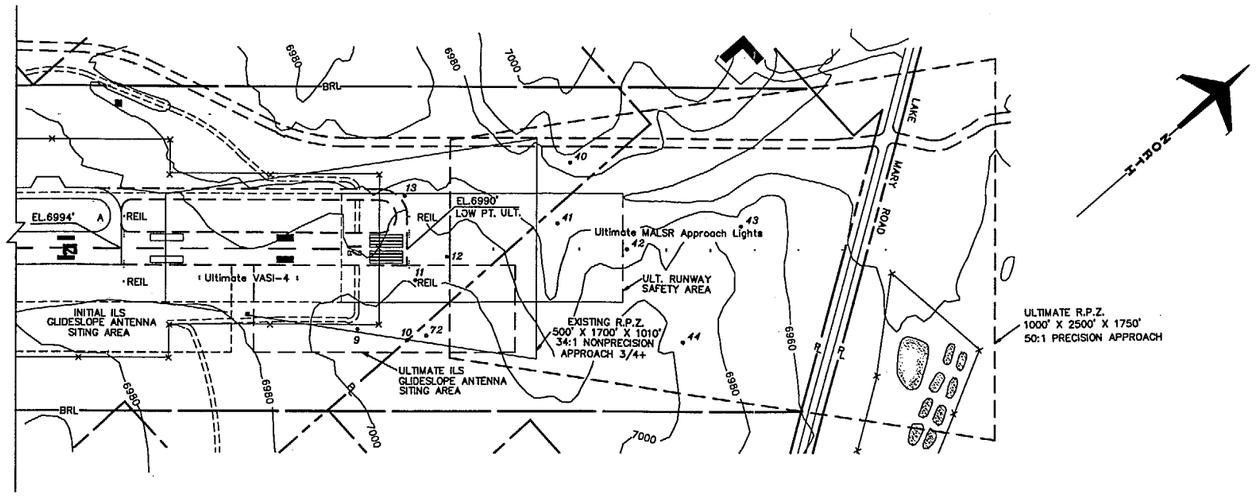
The off-airport land use recommendations depicted on **Sheet No. 6** are based upon the noise impacts anticipated to occur in the airport environs as a result of growth in airport operations throughout the planning period. The noise contours are generated from an FAA approved noise methodology referred to as the **Day-Night Average Sound Level (Ldn)**. Ldn is defined as the average A-weighted sound level during a 24-hour period. The noise contours depicted in this analysis were based on the Integrated Noise Model (INM), Version 3.9. The model computes noise exposure levels for regular grid points around the airport. Stored within the INM's data base are tables relating to noise, slant range and engine thrust settings for each distinct aircraft type.

- **Noise Impacts**

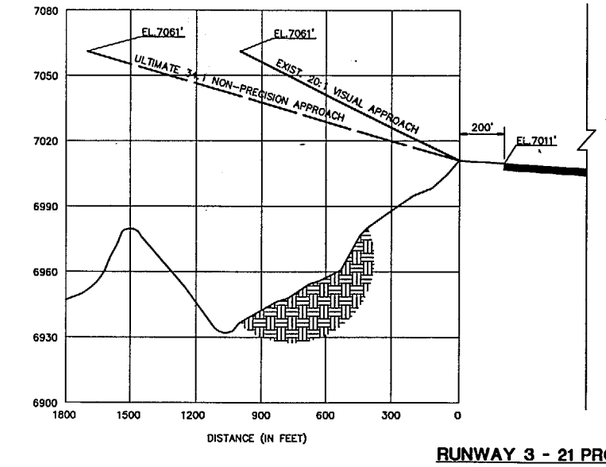
The basic elements and concepts of Ldn combine noise frequency, time of day and energy averaging of aircraft types and numbers to produce a contour line that indicates an average noise level (Ldn) at a certain distance from the airport. A penalty has been imposed on operations conducted at the airport during the night hours (defined as from 10:00 pm to 7:00 am). Aircraft operations conducted during this time period receive a 10 decibel penalty (increase).

The model also considers the types of tracks and profiles that aircraft follow when arriving

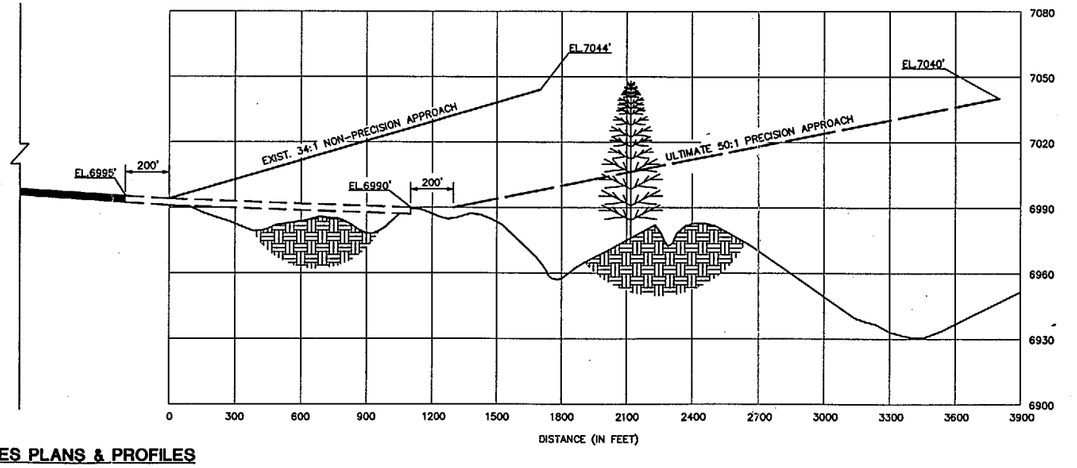




RUNWAY 3



RUNWAY 21



RUNWAY 3 - 21 PROTECTION ZONES PLANS & PROFILES

OBSTRUCTION TABLE

Description	Elevation (MSL)	Obstruction	Disposition	Description	Elevation (MSL)	Obstruction	Disposition
9. TREE	UP TO 7056'	61' OBSTRUCTION TO THE PRIMARY SURFACE	REMOVE	43. TREES	UP TO 7061'	37' OBSTRUCTION TO THE APPROACH SURFACE	REMOVE
11. TREE	UP TO 7047'	52' OBSTRUCTION TO THE PRIMARY SURFACE	REMOVE	44. TREES	UP TO 7075'	62' OBSTRUCTION TO THE APPROACH SURFACE	REMOVE
12. TREE	UP TO 7050'	55' OBSTRUCTION TO THE APPROACH SURFACE	REMOVE	45. TREES	UP TO 7043'	26' OBSTRUCTION TO THE APPROACH SURFACE	REMOVE
13. TREE	UP TO 7025'	30' OBSTRUCTION TO THE PRIMARY SURFACE	REMOVE	46. TREES	UP TO 7050'	26' OBSTRUCTION TO THE APPROACH SURFACE	REMOVE
40. TREES	UP TO 7034'	26' OBSTRUCION TO THE APPROACH SURFACE	REMOVE	47. TREES	UP TO 7043'	19' OBSTRUCTION TO THE APPROACH SURFACE	REMOVE
41. TREES	UP TO 7055'	39' OBSTRUCTION TO THE APPROACH SURFACE	REMOVE	66. TREE	UP TO 7074'	75' OBSTRUCTION TO THE TRANSITION SURFACE	REMOVE
42. TREES	UP TO 7048'	34' OBSTRUCTION TO THE APPROACH SURFACE	REMOVE	71. TREE	UP TO 7028'	5' OBSTRUCTION TO THE APPROACH SURFACE	REMOVE
				72. TREE	UP TO 7011'	81' OBSTRUCTION TO THE	REMOVE

OBSTRUCTION LEGEND

•' OBSTRUCTION

Note: Obstruction obtained from N.O.S Obstruction Chart 5034 May 1990.

GENERAL NOTES:

The obstructions indicated on the Part 77 Airspace Plans were obtained from NOAA Obstruction Chart OC-5034, dated November 1990. A field survey should be conducted to ascertain the location and height of any obstruction listed on these plans.

HORIZONTAL SCALE 0 300 600 900 SCALE IN FEET

VERTICAL SCALE 0 30 60 90 SCALE IN FEET

Coffman Associates Airport Consultants

FLAGSTAFF, ARIZONA PULLIAM AIRPORT

PULLIAM AIRPORT

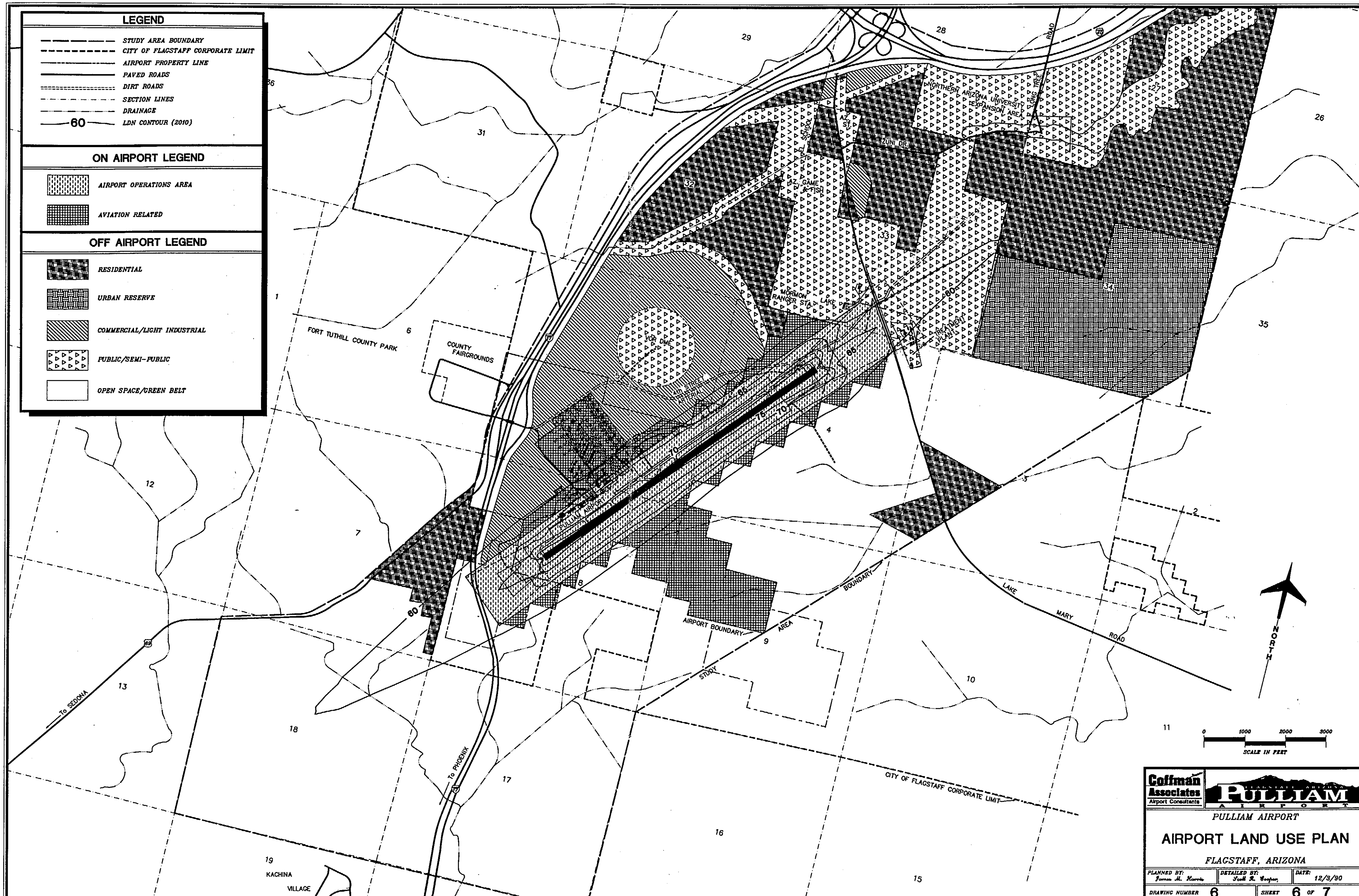
RUNWAY PROTECTION ZONES PLAN

RUNWAY 3 - 21

FLAGSTAFF, ARIZONA

PLANNED BY:	DETAILED BY:	DATE:
James M. Morris	Scott R. Cooper	12/12/90

DRAWING NUMBER 5 SHEET 5 OF 7



Coffman Associates
Airport Consultants

PULLIAM AIRPORT

PULLIAM AIRPORT

AIRPORT LAND USE PLAN

FLAGSTAFF, ARIZONA

PLANNED BY: James M. Harris	DETAILED BY: Scott R. Cooper	DATE: 12/3/90
DRAWING NUMBER 6	SHEET 6 OF 7	

or departing Flagstaff Pulliam Airport. This data produces a series of lines called noise contours, which, when plotted on a surface map, indicate the average day-night level of noise predicted for the number and type of aircraft operations conducted at the airport.

The forecast aircraft types and operations for the year 2010 were used to produce the noise contours used on the Land Use Plan. It should be emphasized that Ldn noise contours are presented for annual average conditions. Consequently, the contours will tend to understate noise exposure levels during peak periods and overstate the condition during slow activity periods. These variations are not as significant as might be expected.

Ldn contours can be used to highlight an existing or potential aircraft noise problem, assess relative exposure levels of various noise abatement alternatives, assist in the preparation of airport environs land use plans and provide guidance in the development of land use control devices. They are not, however, absolutes which reflect every conceivable operating condition. They represent typical conditions for planning purposes.

Aircraft noise affects people and impacts land uses in different ways. Various government and private agency studies (particularly those studies conducted by EPA and FAA) have defined the general sensitivity of various land uses to noise levels. The land use compatibility guidelines contained in Federal Aviation Regulation (FAR) Part 150 were used to recommend the land uses depicted on the plan. In general, residential land uses are not considered "*compatible*" with noise contour levels above 65 Ldn. **Table 7B** lists the compatible land uses described in FAR Part 150. **Exhibit 7A** provides a graphic illustration of this table.

Based on FAA guidelines and the noise contours for the existing level of operations at the airport and that projected for the year 2010, a review was made of the potential incompatible land uses at Flagstaff Pulliam Airport. For the existing and future condition, no incompatible land uses were identified since the 65 Ldn noise contour was contained totally within the airport property. The 65 Ldn noise contour generated for the year 2010, however, would affect approximately 15 acres of non-airport property. All of this impact would be in the RPZ for Runway 21 and be considered on-airport after the Stage I land acquisition is completed.

The remaining off-airport areas affected by airport operations are overflight of residential land uses by aircraft operating at the airport. The airport presently has a noise abatement procedure in effect for aircraft departing to the southwest on Runway 21. This procedure requires that pilots obtain a minimum of 400 feet above the ground before turning on course after departure.

During the previous master plan, public input and recommendations by the Planning Advisory Committee suggested that the 60 Ldn noise contour be used as a residential land use guideline for the City. The City established an Airport Sub-Element within their planning document, **Growth Management Guide 2000.** Within this sub-element, the City designated the 60 Ldn Noise contour as a Noise Sensitive Zone. As a policy guideline, the City and the County should discourage further residential development within the Airport Noise Sensitive Zone in the interests of protecting both the airport and the general public.

The projected 2010 60 Ldn noise contour, based upon the forecasts prepared in Chapter 3, is somewhat smaller in size than the

projected 60 Ldn noise contour based on the previous master plan data. This is primarily due to the improvements being made in aircraft engine technology and the favorable impact these engines will have on future aircraft noise levels. However, aircraft noise is not the primary public concern at Flagstaff Pulliam Airport. Most of the adverse public reaction to airport operations is due to overflight by aircraft landing and/or taking off from the airport. By retaining the present land use guidelines described in the City's planning document ("...discouraging residential development within the Airport Noise Sensitive Zone... Urban Reserve areas in the environs of Flagstaff Pulliam Airport should be developed subject to restrictive covenants and avigation easements designed to mitigate airspace, safety and noise pollution...") the public is provided a greater degree of protection from aircraft overflight.

The current Growth Management Guide 2000, which contains the land use guidelines developed and followed by the City of Flagstaff, provides compatible land uses for the property in the airport environs. At present, a review of the City's ordinances is underway. It is possible that an Airport District will be established containing the property within the airport's noise contours. This will ensure that the present and future development within the Airport District will be made compatible with airport operations and activity.

AIRPORT PROPERTY MAP

The Airport Property Map, **Sheet No. 7**, illustrates in more detail the existing property lines and easements as well as future land acquisitions. Additional land required to meet FAA design standards (BRL, RPZ and runway safety areas) must be under the control of the airport sponsor. This may be accomplished through several types of land control devices such as avigation easements, permits, and land purchases or exchange.

Existing Property

The airport was originally procured from the United States Department of Agriculture (USDA) under the Federal Airport Act, in July 1948. A quitclaim deed was filed in the District Court of the United States for the District of Columbia which gave approximately 795 acres of land to the City of Flagstaff for the purpose of constructing a public airport.

In June 1954, the City of Flagstaff received an avigation easement for three parcels of land (indicated on **Sheet No. 7**) from the USDA to provide approach protection to existing and future runways at the airport. These avigation easements were given in perpetuity by the USDA as long as the airport complied with the provisions of the easement.

In January 1988, the City of Flagstaff secured a Deed of Release from USDA and the FAA for several parcels of airport property west of the existing terminal area. The Deed of Release allows the City to sell or lease this land for use as an industrial development area, however, proceeds from the sale or lease must be used to fund airport development projects. At the present time, the property has not been sold or leased, therefore, the Airport Property Map indicates the current Westplex area boundary as a future property line.

LAND USE	Yearly Day-Night Average Sound Level (DNL) in Decibels					
RESIDENTIAL	Below 65	65-70	70-75	75-80	80-85	Over 85
Residential, other than mobile homes and transient lodgings	Y	N[1]	N[1]	N	N	N
Mobile home parks	Y	N	N	N	N	N
Transient lodgings	Y	N[1]	N[1]	N[1]	N	N
PUBLIC USE						
Schools	Y	N[1]	N[1]	N	N	N
Hospitals and nursing homes	Y	25	30	N	N	N
Churches, auditoriums, and concert halls	Y	25	30	N	N	N
Government services	Y	Y	25	30	N	N
Transportation	Y	Y	Y[2]	Y[3]	Y[4]	Y[4]
Parking	Y	Y	Y[2]	Y[3]	Y[4]	N
COMMERCIAL USE						
Offices, business and professional	Y	Y	25	30	N	N
Wholesale and retail-building materials, hardware and farm equipment	Y	Y	Y[2]	Y[3]	Y[4]	N
Retail trade-general	Y	Y	25	30	N	N
Utilities	Y	Y	Y[2]	Y[3]	Y[4]	N
Communication	Y	Y	25	30	N	N
MANUFACTURING AND PRODUCTION						
Manufacturing, general	Y	Y	Y[2]	Y[3]	Y[4]	N
Photographic and optical	Y	Y	25	30	N	N
Agriculture (except livestock) and forestry	Y	Y[6]	Y[7]	Y[8]	Y[8]	Y[8]
Livestock farming and breeding	Y	Y[6]	Y[7]	N	N	N
Mining and fishing, resource production and extraction	Y	Y	Y	Y	Y	Y
RECREATIONAL						
Outdoor sports arenas and spectator sports	Y	Y[5]	Y[5]	N	N	N
Outdoor music shells, amphitheaters	Y	N	N	N	N	N
Nature exhibits and zoos	Y	Y	N	N	N	N
Amusements, parks, resorts, and camps	Y	Y	Y	N	N	N
Golf courses, riding stables, and water recreation	Y	Y	25	30	N	N

The designations contained in this table do not constitute a Federal determination that any use of land covered by the program is acceptable under Federal, State, or local law. The responsbility for determining the acceptable and permissible land uses and the relationship between specific properties and specific noise contours rests with the local authorities. FAA determinations under Part 150 are not intended to substitute federally determined land uses for those determined to be appropriate by local authorities in response to locally determined needs and values in achieving noise compatible land uses.

See other side for notes and key to table.

Exhibit 7A
FAA PART 150 GUIDELINES ON LAND USE COMPATIBILITY

KEY

Y (Yes)	Land Use and related structures compatible without restrictions.
N (No)	Land Use and related structures are not compatible and should be prohibited.
NLR	Noise Level Reduction (outdoor to indoor) to be achieved through incorporation of noise attenuation into the design and construction of the structure.
25, 30, 35	Land Use and related structures generally compatible; measures to achieve NLR of 25, 30, or 35 dB must be incorporated into design and construction of structure.

NOTES

1 Where the community determines that residential or school uses must be allowed, measures to achieve outdoor to indoor Noise Level Reduction (NLR) of at least 25 dB and 30 dB should be incorporated into building codes and be considered in individual approvals. Normal residential construction can be expected to provide a NLR of 20 dB, thus, the reduction requirements are often stated as 5, 10, or 15 dB over standard construction and normally assume mechanical ventilation and closed windows year round. However, the use of NLR criteria will not eliminate outdoor noise problems.

2 Measures to achieve NLR of 25 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas, or where the normal noise level is low.

3 Measures to achieve NLR of 30 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas, or where the normal noise level is low.

4 Measures to achieve NLR of 35 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas, or where the normal noise level is low.

5 Land use compatible provided special sound reinforcement systems are installed.

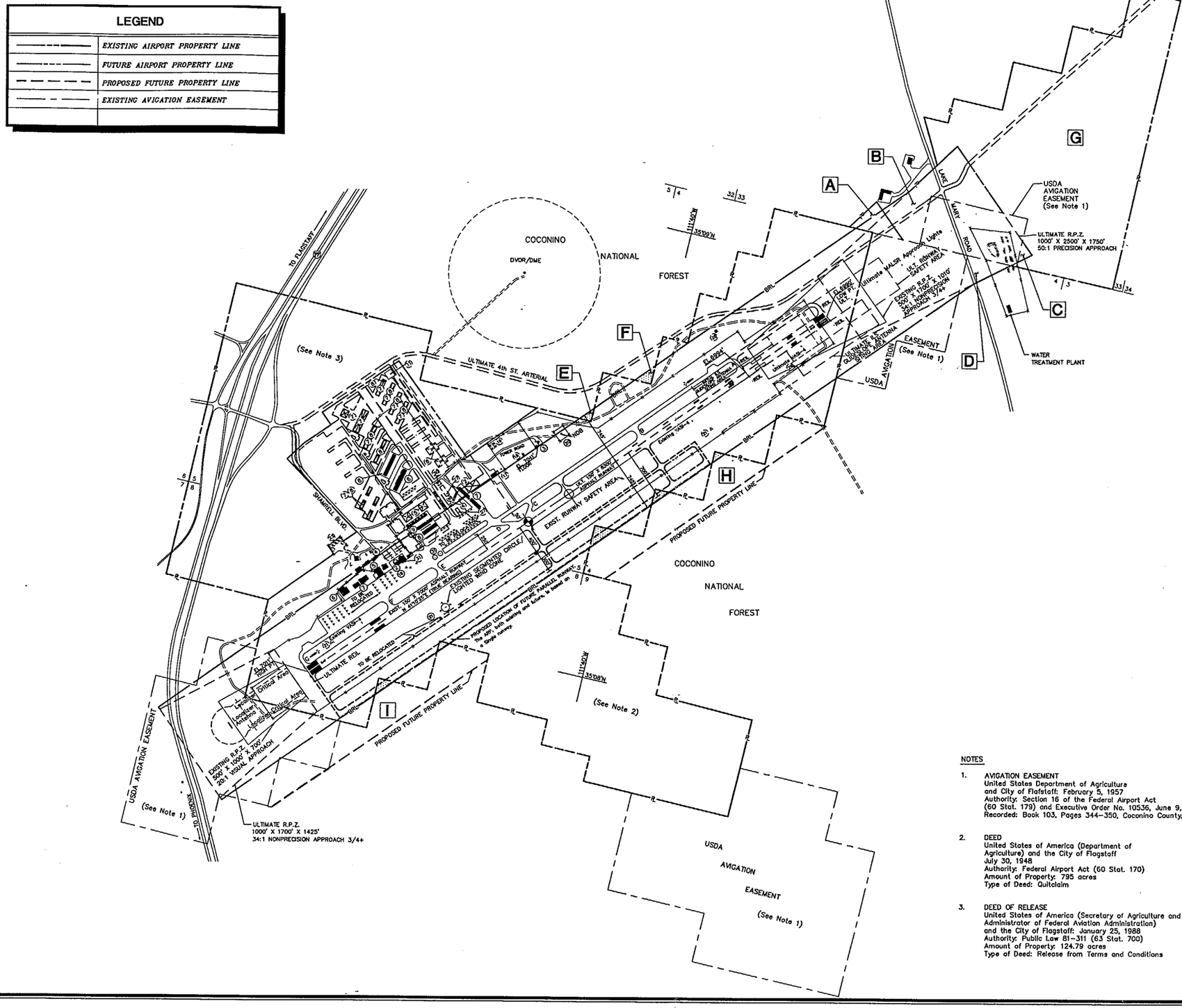
6 Residential buildings require a NLR of 25.

7 Residential buildings require a NLR of 30.

8 Residential buildings not permitted.

Source: ***F.A.R. Part 150,*** *Appendix A, Table 1.*

Exhibit 7A (Cont.)
FAA PART 150 GUIDELINES
ON LAND USE COMPATIBILITY



TOTAL LAND REQUIRED FOR AIRPORT DEVELOPMENT			
PARCEL	QUANTITY ± (acres)	PURPOSE	AREA
A	3.3	RPZ	Rwy 21
B	18.3	RPZ & BRL	Rwy 21
C	.39	RPZ	Rwy 21
D	2.86	RPZ & BRL	Rwy 21
E	.4	BRL	Rwy 21
F	.6	BRL	Rwy 21
G	151.49	Approach Protection	Rwy 21 Approach
H	30.07	BRL	Rwy 3R–21L
I	21.17	BRL	Rwy 3R–21L

NOTE: All parcel sizes approximate. A survey and meets and bounds description will be necessary.

MAGNETIC VARIANCE 16°42'00"E (1990)
ANNUAL RATE OF CHANGE = 0.6° EASTERLY

0 600 1200 1800
SCALE IN FEET

NOTES

1. AVIGATION EASEMENT
United States Department of Agriculture
and City of Flafstaff: February 5, 1957
Authority: Section 16 of the Federal Airport Act
(60 Stat. 179) and Executive Order No. 10536, June 9, 1954
Recorded: Book 103, Pages 344–350, Coconino County, Arizona

2. DEED
United States of America (Department of
Agriculture) and the City of Flagstaff
July 30, 1948
Authority: Federal Airport Act (60 Stat. 170)
Amount of Property: 795 acres
Type of Deed: Quitclaim

3. DEED OF RELEASE
United States of America (Secretary of Agriculture and
Administrator of Federal Aviation Administration)
and the City of Flagstaff: January 25, 1988
Authority: Public Law 81–311 (63 Stat. 700)
Amount of Property: 124.79 acres
Type of Deed: Release from Terms and Conditions

Coffman Associates Airport Consultants

FLAGSTAFF, ARIZONA PULLIAM AIRPORT

PULLIAM AIRPORT

AIRPORT PROPERTY MAP

FLAGSTAFF, ARIZONA

PLANNED BY:	DETAILED BY:	DATE:
Thomas M. Harris	Charlotte A. Morgan	3/11/91
DRAWING NUMBER 7	SHEET 7 OF 7	